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Children's Direct Exposure to Types of Domestic Violence Crime: A Population-based Investigation

Abstract
Police officers served as public health sentinels to collect data on children exposed to domestic violence across an entire municipality for one year. This study extended research by investigating a typology of domestic violence crimes and children's direct sensory exposure to these types. Police officers used a standard, validated protocol to collect data on all substantiated domestic violence. Findings revealed that almost half of all events had children present, and 81% of these children were directly exposed to the violence. Children under the age of 6 years old were at greater risk of exposure. Identified domestic violence households with children were more likely to be low-income, non-White, and headed by a single female, compared to households at large. Cluster analysis revealed seven domestic violence event profiles. Typology showed that children were disproportionately exposed to the most unstable and dangerous profiles including weapon use, mutual assault, and substance abuse.

Keywords
domestic violence, child exposure, prevalence, law enforcement, typology

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A Population-based Study of Children's Direct Sensory Exposure to Substantiated Domestic Violence Crimes

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Abstract

Police officers served as public health sentinels to collect data on children exposed to domestic violence events across an entire municipality for one year. They used a standard, validated protocol to collect data on all investigate domestic violence crimes (DVEs). This study extended previous research by including data demographic data on children in the household at the time of the DVE and investigating children's direct sensory exposure to DVEs. Findings revealed that almost half of all events had children present, and 81% of these children were directly exposed to DVEs. Children under the age of 6 years old were at greater risk of direct sensory exposure. Domestic violence households with children were more likely to be low-income, non-White, and headed by a single female, compared to households at large. Logistic regressions revealed that six major DVE variables were related to children being directly exposed. These included father as perpetrator, victim injury, weapon use, non-White victim, mutual assault, and arrest of perpetrator.

A Population-based Study of Children's Direct Sensory Exposure to Substantiated Domestic Violence Crimes

Domestic violence is a crime and a public health problem of significant proportions in the U.S. (Rosenberg, O'Carroll, & Powell, 1992). Global survey data on violence against women by intimate partners, and childhood exposure to such violence, demonstrate the scope of this persistent and severe national problem. Data reported by the Bureau of Justice Statistics indicate intimate partner violence made up 20% of all nonfatal violent crime experienced by women in 2001 (U.S. Department of Justice, 2003). These data also show that in the last 25 years 57,000 individuals have been killed in domestic violence situations.

In the past decade, awareness of this national concern has prompted the passage of the Violence Against Women Act (VAWA), which has generated legislation to combat domestic violence (U.S. Department of Justice, 1994). All states have passed domestic violence legislation providing criminal penalties for acts of violence within the home (Hyman, Schillinger, & Lo, 1995), and criminal codes have been revised to seek clear definitions of domestic violence and to strengthen the authority of police officers to investigate and intervene in violent situations.

In addition to our increased understanding of domestic violence, there has been growing awareness of the potential negative effects of this violence on children living in these households. For example, existing studies show that children exposed to domestic violence exhibit more social-emotional and cognitive difficulties than nonexposed children. Children from violent homes have reported lower levels of social competence, fewer interests outside of school, and less involvement in social activities compared to children from nonviolent homes (Jaffe, Wolfe, & Wilson, 1990; Margolin & Gordis, 2000). Exposed children of all ages were more likely to be rejected by peers than their counterparts from nonviolent homes, and to report lower-quality peer

relationships (Jaffe et al., 1990; Margolin & Gordis, 2000). Studies have shown exposed children are more likely to demonstrate conduct disordered behavior and aggression, and engage in criminal activities more than non-exposed children (Herrera & McClosky, 2001; Jouriles, McDonald, Norwood, & Ezell, 2001; Pelcovitz, Kaplan, DeRosa, Mandel, & Salzinger, 2000). Some studies have found exposed children to have lower scores on cognitive measures than non-exposed children (Pelcovitz et al., 2000; Osofsky, 1999).

Studies comparing the psychological functioning of children exposed and not exposed to domestic violence contribute to our knowledge base. There are, however, some significant shortcomings in this body of research that limit our understanding of the extent and nature of domestic violence in the U.S. First, although children's exposure to domestic violence events (DVEs) has been described as a public health problem of epidemic proportions (Glodich, 1998), the current research is not population-based and relies principally on convenience samples. More specifically, the samples were often drawn from children who are with their mothers in domestic violence shelters (Jouriles et al., 2001). Second, information about children's experiences is often extrapolated from victims' retrospective reports of domestic violence events. Researchers use these data to make assumptions about the exposure of children in the household with no direct investigation. Third, information derived from these victim reports are reduced typically to a binary indication of "exposed" versus "non-exposed," with little understanding of the different types of events that constitute the domestic violence experience, the variability of exposure, and factors that mediate exposure. To advance the impact research of this public heath concern, we need to examine the state of our existing population-based research of the prevalence and variability of domestic violence and child exposure.

A developmental epidemiological model provides a viable public health approach to enhance the scientific rigor of domestic violence research (Buka & Lipsitt, 1994). As applied to domestic violence, this model involves defining the types of domestic violence that children are exposed to and documenting the scope of exposure in the child population. The developmental aspect of the model seeks to identify the specific nature of risk associated with the various types of domestic violence events and factors which mediate children's exposure to these types of violence. The epidemiological aspect of the model identifies public health sentinels in our communities. These sentinels are first responders to domestic violence events, who are officially charged to be observers for the public record. Sentinels are frontline professionals who are trained to use standard, empirically validated data-collection protocol to provide accurate information on the prevalence of domestic violence and children's exposure across municipalities.

This framework supports the use of population-based studies to address the limitations associated with samples of convenience and telephone surveys with no data on direct sensory exposure to domestic violence. Furthermore, by including an entire population of children, this type of study could enhance knowledge of other family and individual characteristics in households where children are exposed to domestic violence. Through studying an entire population of children, it would be possible to determine if exposed and nonexposed children differ on other characteristics, such as living in poverty or in single female-headed households. Lastly, population-based inquiry permits examination of low prevalence events. It can account for the array of experiences that children within a population may experience, and permits a large enough sample size to detect meaningful differences within experiences.

The developmental epidemiological model uses direct assessment and front line sentinels to collect data. Since domestic violence is a crime with mandated investigation by law

enforcement, police officers are in a key position to serve as one of the primary public health sentinels to collect data on children exposed to domestic violence. Recent studies have used police surveillance effectively to gather information about domestic violence events and associated risk factors. A study by Gjelsvik, Verhoek-Oftendahl, and Pearlman (2003) utilized the Rhode Island Department of Health Violence Against Women Public Health Surveillance System to examine factors associated with children present during police-substantiated domestic violence. Police collected data on the demographic characteristics of the victim, characteristics of the incident, and whether children were present. Results showed that 44% of all substantiated domestic violence events had children present. These children were more likely to be from ethnic minority households and 47% of them were less than 6 years old. Although this study illustrated police officers working as public health sentinels across a fixed population, it was limited in four ways. First, no data on the characteristics of perpetrators was provided. Second, no details were provided on the definitions of the domestic violence event variables and on methods the police used to collect these data. Third, no information was given regarding police officer training on direct assessment of domestic violence and children present. Finally, the reliability and validity of the data collection instruments were not reported.

Police officers used standard methods to collect data on substantiated domestic violence in research on the Spouse Assault Replication Program (SARP). SARP was a large, cross-city field experiment of the impact of arrest in deterring subsequent misdemeanor domestic violence (Maxwell, Garner, & Fagan, 2001). The SARP database contained information on domestic violence events, individuals present in the household during the events, and associated risk factors across five municipalities. Data were collected at the time of the incident, thus avoiding the problems of retrospective reports. A secondary analysis of this database by Fantuzzo, Boruch,

Beriama, Atkins, and Marcus (1997) showed that children were disproportionately present in households where there was a substantiated incident of domestic violence. Households where domestic violence occurred included higher levels of risk factors to children, such as poverty, single-female headed households, and substance abuse associated with the event. However, from an epidemiological perspective this study was limited in two ways. First, it was not a comprehensive study of events across a population. Only misdemeanor domestic violence cases were included in the study, and cases were excluded if they did not demonstrate male-to-female violence (Maxwell et al., 2001). Second, no data were provided to document the reliability and validity of the use of the standard protocol or police officer training.

A recent study (Fantuzzo, Fusco, Mohr, & Perry, in press) indicated that police officers were able to use a standard, validated protocol to gather information on all reported domestic violence events and the presence of children across an entire municipality for a three year period. The instrument, called the Domestic Violence Event Protocol (DVEP), contains items developed to reflect the categories identified as being important in defining family violence events (National Research Council, 1998). Demographic data were collected on victims and perpetrators. Checklists were used to record officer's observations of the means of assault and any visible injuries. The protocol required police officers to document if children were present, that is, in the household at the time of the domestic violence event. Both in training and in the field police officers' reports matched independent reliability checks. The findings indicated that children were present in almost half of all events, and households with domestic violence were significantly more likely to have children compared to households in the county at large. However, this study did not provide data on the number and characteristics of children exposed and whether they had direct sensory exposure to the violence. This type of data is important since the child-trauma

literature documents that the nature and degree of exposure to traumatic events mediate impact (Rossman, Hughes, & Rosenberg, 1998).

The purpose of the current study was to extend research using the DVEP (Fantuzzo et al., in press) to examine children's direct sensory exposure to risk factors associated with domestic violence events investigated by law enforcement. The DVEP research was extended two ways in the present study. First, this study used an enhanced version of the DVEP, which retained all the original items and added basic information on child characteristics and the nature of children's sensory exposure to domestic violence. A descriptive picture of all the children present during law enforcement-investigated domestic violence events across an entire municipality was provided. This included the distribution of children's age, race, gender, and relationship to the victim as well as, whether the children present had direct sensory exposure to the DVE (heard, saw, or were injured during the event). Second, this study extended the use of multiple logistic regressions by examining the relationship between characteristics of DVEs and children's direct sensory *exposure* to these events. To this end two major research questions were investigated: (1) Are children disproportionately represented in households with substantiated cases of domestic violence and do these households involve a disproportionate exposure to other known risks such as poverty or single-female headed households? and (2) What domestic violence event characteristics are associated uniquely with children's direct exposure to domestic violence?

Method

Participants

Data for this study were obtained from the domestic violence database of a large county police department in the Northeast. Data were collected on all domestic violence events (DVEs) substantiated by law enforcement investigation across a one year period using the Domestic

Violence Event Protocol-Child Enhanced (DVEP-C). This involved a total of 1,517 substantiated DVEs. The participating county is both suburban and rural, and has a population of approximately 837,000. County residents are predominantly Caucasian, middle-class, and well-educated. Sixty-five percent of the residents were Caucasian, 15% African American, 12% Latino, and 8% Asian. The median house value is $221,800, and one out of two adult residents has at least a bachelor's degree (U.S. Bureau of the Census, 2000). Only 5% of residents live in poverty, and poor families with children under age 5 constitute 6% of the total population. Crime rates in the county are below the national average; violent crime is low compared to populations of similar size. The municipality's police department reported 32 murders and 138 rapes in 2001. Aggravated assaults occurred with nearly 1 out of 1,000 residents, and almost half involved violence between intimate partners in the home. There were approximately 900 robberies in 2001.

Measures

Domestic Violence Event Protocol-Child Enhanced (DVEP-C). The DVEP-C is an enhanced version of the Domestic Violence Event Protocol (DVEP; Fantuzzo et al., in press). The DVEP-C is a standard data collection protocol used by police officers to capture key features of DVEs. It includes characteristics of domestic violence events that have been derived from the domestic violence literature (National Research Council, 1998). It provides a format for collecting demographic information on the victim and perpetrator including race, sex, age, and nature of their relationship. The DVEP-C has specific checklists to record the officer's observations documenting the means of assault by using a continuum of severity (from hand to knife or gun) as well as a checklist on which to record any visible injuries (e.g., lacerations, bruises). With respect to the visible injuries, officers are required to mark the location of the injury and to take a photograph of it. Officers also indicate if medical treatment was provided on the scene or subsequently at a

hospital. The DVEP-C includes information about the number of prior incidents reported by the victim, whether there is a current or previous protection order against the perpetrator, and whether or not the DVE resulted in an arrest.

The child enhancement of the DVEP-C includes data on children's demographics and their level of sensory exposure. The DVEP-C includes items for the number of children in the household, the ages, sexes, and races of the children, and the relationship of the children to the victim. There are yes/no boxes for whether the children heard and/or saw the violence, and whether or not they were injured during the violent event. Police officers were trained to look at every child in the household to establish that they are safe, and then to talk with the children to assess their level of exposure. When there are young children who are not developmentally able to respond, the officer asks the victim about the nature of the child's exposure.

The DVEP-C format was developed in partnership with law enforcement officials to ensure that the information could be obtained as part of the routine police officer investigation of the DVE. Officers received police academy training in the definitions of terms used in the DVEP-C as well as how to conduct the child exposure inquiries accurately. They were trained in the academy or through department workshops to reliably use the DVEP-C before implementing it in the field. The training involved vignettes and simulations. The officers had to match a standard and meet a minimal level of reliability (80%). This training was followed by annual continuing education session on defining and understanding DVEs.

The DVEP-C demonstrated high internal consistency (Cronbach's $\alpha = .87$; Fantuzzo, Fusco, Mohr, & Perry, in press). Checks on the reliability of the DVEP-C victim, perpetrator and incident variables were established by several independent sources. Officer responses were compared with independent sources of domestic violence reports as captured by trainers during

instruction and separate event reports reviewed by supervisors and detectives conducting domestic violence investigations. During training, this involved comparing the domestic violence event characteristics recordings of trained independent observers (standards) with the police officers' DVEP recordings of vignettes and simulations. In the field, independent event recordings were checked by police supervisors and domestic violence detectives. The above checks provided empirical support with intraclass correlations ranging from $r = .76$ to .88. The reliability of the child data collected on the DVEP-C was assessed in part by capitalizing on an interagency agreement between the police department and the County's Department of Health and Human Services (DHHS). The confidentiality agreement between the two agencies allowed for a check on children identified in both agencies' databases. Reliability checks on children's age, gender, and ethnicity showed intraclass correlations ranging from $r = .86$ to .95. Systematic social observations (SSO) of police activities via ride-alongs (Reiss, 1971) were used to validate further the DVEP-C recording process. Qualitative SSO data were collected from officers. These data indicated that officers understood the value of collecting these data and were committed to doing so.

Procedures

Data collection. The current project was developed through a collaborative research relationship between the Family Service Unit of the police department and the research team. The major goal of this research project was to conduct a population-based study of domestic violence events and children exposed to domestic violence within one municipality using a standard protocol. Prior to obtaining the data, permission was granted for their release and confidentiality agreements were established. All identifying information, such as names and addresses, was used solely for matching purposes, and the final dataset was stripped of identifiers other than Crime Report numbers. The DVEP-C dataset was reviewed and cleaned before any analyses were

conducted. Elements of the dataset were verified by randomly checking the paper copies of the DVEP-C and comparing them to data entered into the system. The matching procedures used to integrate the data into one dataset were completed using SAS software. Duplicate data fields were deleted once the final dataset was completed.

Police department characteristics. The police department consists of six districts and 1,074 officers whose ethnicity roughly corresponds to the ethnic composition of the county. The Domestic Violence Unit is one of four sections in the Family Services Division of the police department. This unit is housed in the same facility as other agencies that provide help for at-risk youth and child victims (i.e., Child Protective Services, Juvenile Justice Offices, Runaway Unit), allowing for greater collaboration between units who work with families. Domestic violence is defined in the municipality as threats or acts of physical violence between intimates or former intimates. All officers are given academy training in how to recognize and deal with domestic violence events, children's exposure to such events, and laws and statutes related to domestic violence. This jurisdiction does not have mandatory arrest laws for domestic violence crimes; nor are there enhanced penalties for DVEs with children at the scene.

Data Analysis

Logistic regression was used to assess how children's exposure related to the nature of domestic violence events. Logistic regression analyses created statistical models to predict classification of cases into one of two outcome categories (children exposed vs. children not exposed) given the set of eight explanatory variables. All DVEP-C variables describing characteristics of the domestic violence event were used as explanatory variables in the model. In order to dichotomize explanatory variables, certain data had to be collapsed into binary categories. The following are the sets of dichotomized explanatory variables: White vs. Non-white victim

(includes African American, Hispanic, and Other); Victim injury (includes major and minor injuries) vs. No victim injury; Arrest vs. No arrest (at the scene of the domestic violence event); Weapon vs. No weapon (refers to guns, knives, clubs, or any other object used by the perpetrator to inflict injury; does not include bodily force); Mutual violence vs. Non-mutual violence (cases where police determined both parties were aggressors; did not include violence that was considered purely self-defense), and Substance use vs. Non-substance use (including both alcohol and drug use documented by police at the time of the domestic violence event). The DVEP-C includes three mutually exclusive relationship categories: Married, Dating, and Coparenting. Coparenting couples were those who only had a relationship through biological children in common. For these analyses, only coparenting was entered into the model since it can be concluded that children in violent households where coparenting is coded are being exposed to violence between both of the children's biological parents. Relationships between the children and the perpetrator cannot be accurately inferred from other categories. The DVEP-C provided a means for officers to distinguish between the types of sensory exposure (i.e., hearing, seeing, physically involved. The types of direct sensory exposure were collapsed into a dichotomous ‘direct exposure/no direct exposure’ outcome variable. All variables were entered simultaneously.

First, the Score statistic was examined. This statistic is the overall chi-square testing the null hypothesis (H_0) that all explanatory variable coefficients equal zero. A significant Score statistic (rejection of H_0) indicates that the coefficient of at least one explanatory variable in the model is statistically significant (different from zero) and therefore, the individual Wald chi-squares may be examined. The significance of each explanatory variable was assessed using the Wald chi-square statistic. A significant Wald chi-square indicated a significant relationship

between an explanatory variable and the outcome variable. The relative weight of each explanatory variable and the direction of the relationship were examined using the odds ratio.

Chi-square analyses were used to address a number of questions related to children's disproportionate involvement in various aspects of domestic violence exposure. First, it was determined if children were disproportionately represented in domestic violence households and if these households had significantly higher rates of family risk factors compared to households at large in the county. In domestic violence households with children, it was determined whether young children were disproportionately exposed to domestic violence. Block group level census data (U.S. Bureau of the Census, 2000) was used to make these household comparisons.

Results

Characteristics of victims and perpetrators of DVEs

Findings revealed that 87% of the domestic violence victims were female, with a mean age of 32 years (*SD* = 9). Eighty-six percent of the perpetrators were male, with a mean age of 33 years (*SD* = 9). Victims were African American in 36% of the events. Approximately 41% of victims and perpetrators were married and 74% of all couples had a prior history of domestic violence. Although two-thirds of the county is White, more than 63% of the reported domestic violence victims were minorities. A closer inspection of the 2000 U.S. Census data showed that the minority populations in this municipality are disproportionately living in neighborhoods with higher rates of household poverty. These results suggest that poverty is more likely the risk factor that is associated with domestic violence in this municipality than minority status.

Characteristics of children present during DVEs

Descriptive analyses were conducted to understand more about the characteristics of children present during DVEs. Prevalence findings revealed that children were present for nearly 1

out of every 2 (43%) domestic violence events, for a total of 999 children across the year of study. Census data for the county revealed that households with domestic violence were significantly more likely to have children (43% vs. 35%; χ^2 (1) = 46.92, $p < .0001$) compared to households in the county at large. Of all the DVEs where children were present, there was an average of 1.3 children present (*SD* = 0.7). Ninety-five percent of children present during DVEs were children of the domestic violence victim, and the remaining 5% were relatives or were characterized by "other" relationship (e.g. a family friend, babysitter, or neighbor).

Chi-square analyses using census data also revealed relevant demographic differences between domestic violence households with children and households with children in the county at large. Domestic violence households with children, compared to overall households with children in the county, were more likely to be African American (37% domestic violence households vs. 16% households at large; χ^2 (1) = 535.37, $p < .0001$) or Hispanic (23% vs. 12%; χ^2 (1) = 187.79, $p < .0001$). The domestic violence households with children were more likely to be headed by single females (24% vs. 16%; χ^2 (1) = 80.98, $p < .0001$).

Characteristics of DVEs

In this municipality, domestic violence represented 24% of all violent crime, including homicide, rape, robbery, and assault. The Uniform Crime Codes, which are reported to the FBI by all police departments for the purpose of calculating crime statistics, does not currently contain one code for domestic violence. Rather, there are sub-categories within crime codes that allow officers to specify that the crime occurred between intimates. In this way, domestic violence can be classified as taking place within the context of rape, robbery, assault, or any other type of crime. In this municipality, domestic violence was coded as assault in 95% of police reported events, with the largest category being assault and battery (89%). Across all assaults in the county,

including aggravated assaults, assault and battery, and simple assault, 48% of the total were domestic violence events. More than 90% of the victims sustained injuries resulting from body contact (e.g., hands or feet) and, on average, 11% of the events had weapons involved. Eleven percent of the victims experienced a major injury (e.g., fracture or laceration) resulting from the violence (68% had a minor injury such as a bruise). Perpetrators were arrested in 26% of the DVEs. Substance use was involved in almost 40% of incidents and 25% of cases resulted in the arrest of the perpetrator. Mutual assault occurred in 9% of the incidents and 5% of the victims experienced multiple domestic violence events within a calendar year.

Of all the children present during domestic violence events, 81% were determined to have experienced sensory exposure to the event. Data revealed unique variability in terms of this sensory exposure. With respect to the level of children's sensory exposure, 18% reported only hearing the violence, 5% reported only seeing the violence, and 58% both heard and saw the violence. Four percent of the children were physically injured evidenced as a result of the domestic violence event. With respect to developmental impact, children directly exposed to DVEs were disproportionately young. Nearly 60% of the children directly exposed to domestic violence were younger than age six years old. This is compared to the county census data which indicated that children 0-5 make up only 28% of the child population (US Census Bureau, 2000).

Domestic Violence Event Characteristics Associated with Child Exposure

Results indicated that six of the seven explanatory variables had significant independent relationships with children's direct exposure to domestic violence events (Table 1). Substance use was the only non-significant variable in the model. If the perpetrator and victim were co-parents of the child (making the perpetrator the biological father of the child) then the child was three times as likely to be directly exposed to the domestic violence event. Odds ratios and probability levels

indicated that if victims were injured, and weapons were used, children were almost twice as likely to be directly exposed to the violence. Additionally, there were significant, though relatively weaker relationships between children being directly exposed to domestic violence events if victims of the violence were non-White; engaged in violence (mutual assault); and if the perpetrators were arrested at the time of the event.

Discussion

The present research used a developmental epidemiological model to extend our understanding of children exposed to domestic violence. A major group of municipal sentinels, law enforcement officers, was trained to use a standard, validated protocol (DVEP-C) to collect data on all substantiated domestic violence crimes in one year across an entire municipality. These data were used to provide an enhanced descriptive picture of the prevalence of children's direct exposure to domestic violence events (DVEs) in a municipality and an empirical analysis of distinct DVE characteristics that are associated with children's direct sensory exposure to DVEs.

Results indicated that children were present in almost half of all the investigated DVE crimes in the municipality. Across these DVE households where children were present, 92% of the events involved violence perpetrated against the children's mother. Officers' assessments of direct sensory exposure revealed that 81% had direct sensory exposure to the violence while 19% were in the household but did not hear, see, or become physically involved in the DVE (e.g., asleep during the incident). Of the children directly exposed, children younger than six were disproportionately exposed to DVEs . DVE households with children directly exposed were more likely to be associated with other family risk factors (i.e., low-income, non-White, and headed by a single female) compared to households at large.

These results are comparable to those found in other police surveillance studies, which indicated that young children were disproportionately present in households experiencing domestic violence, and that these homes were more likely to have other risk factors present as well, such as poverty and single-female heads of household (Fantuzzo et al., 1997; Gjelsvik et al., 2003). These findings suggest that children who are most vulnerable to being directly exposed to domestic violence are also threatened by other known developmental risk factors. These co-occurring risks make it more difficult to distinguish the unique impact of exposure to domestic violence (Fantuzzo & Mohr, 1999).

The current study extends previous research by providing the first population-based investigation of children's direct sensory exposure to domestic violence crimes as assessed by police officers. Using a standard assessment of *direct exposure* (DVEP-C), investigators were able to use multiple logistic regression models to study the relationships between multiple DVE characteristics and children's exposure than were possible in the previous study (Fantuzzo, Fusco, Mohr, & Perry, in press), which only provided a dichotomous indication of "child present or not present." Over and above the previous study, the present study found added significant relationships between victim injury, weapon use, and mutual assault and children's direct exposure to DVE's. By focusing on the children who actually heard and/or saw violence being perpetrated, we have the opportunity to move beyond children simply being present in the household to developing our understanding of the nature of children's direct exposure to violence.

In the present research, the co-parenting association indicates that directly exposed children are more likely to witness violent events in their household involving *both* their mother and their father. While at first it is not surprising that children in a household are more likely to be related to the person associated with the household, it signals that in this municipality, children are

more likely to witness a double dose of intimate violence. Instead of the perpetrators being a strangers or a transient contact, the perpetrator was more likely to be the child's biological father. Although the focus in research is on the negative effects of children exposed to a mother's victimization, relatively little is known about the effects of having a father who perpetrates violence. There have been some studies that have shown that quality of fathering is negatively associated with the presence of marital conflict. Cummings, Goeke-Morey, and Raymond (2004) found that when marital conflict is present, the quality of fathering is more likely to be compromised than is the quality of mothering. Their results showed that fathers in conflictual intimate relationships show less engagement with and higher negativity toward their children. A study by McDonald, Jouriles, Norwood, Ware, and Ezell (2000) showed that paternal marital violence was related to internalizing and externalizing problems in children, controlling for family demographic variables, parent-child aggression, and maternal marital aggression. These results suggest that children directly exposed to domestic violence may also face the added risk of being poorly parented by fathers.

The current findings reveal that when the victim is physically injured, and when weapons are present, children are more likely to be directly exposed to domestic violence. There is growing evidence that when children witness violence resulting in injuries, they may experience post-traumatic stress symptoms (Osofsky, 1995; Osofsky, Wewers, & Fick, 1993; Pynoos & Nader, 1993). Although many of these findings come from literature on children exposed to community violence, Fick, Osofsky, and Lewis (1997) found that both parents and police perceive witnessing violence against a parent to have a much greater impact on children than violence against a stranger. Previous studies have found that although weapon use in domestic violence is rare, when weapons are used, injuries to the victim are more severe (Tjaden & Thoennes, 2000; Wilkinson &

Hamerschlag, 2005). Also, there is some indication that children's exposure to weapon violence puts them at increased risk of both direct physical harm, increased psychological trauma, likelihood to use weapons (Slovak, 2002; Slovak & Singer, 2001).

Children were more likely to be exposed when the victim was African American or Hispanic. Results indicated that minority children directly exposed to domestic violence were also living in areas with a higher density of poverty, and in single female-headed households. These results are comparable to those found in the SARP study, which indicated that children were disproportionately present in households experiencing domestic violence, and that these homes were more likely to have other risk factors present as well, such as poverty, low educational achievement of the principal care provider, and single-female heads of household (Fantuzzo et al, 1997). These findings suggest that children who are most vulnerable to direct exposure to domestic violence are also threatened by a number of other developmental risk factors. These co-occurring risks also make it more difficult to distinguish the unique sequelae on children of direct exposure to domestic violence (Fantuzzo & Mohr, 1999).

When children were directly exposed to DVEs, controlling for the level of violence (defined as severity of injuries, presence of weapons, and mutual violence) and demographics, the perpetrators were more likely to be arrested. There are two interesting aspects of this finding that require more exploration. For children who have been exposed to their father abusing their mother, what is the added impact of having a police officer arrest their father in front of them? Also, these findings suggest that children's direct exposure to domestic violence may impact how the officer views the seriousness of the DVE. Perhaps a family context with children heightens the police officer's concerns about the negative impact of the violence.

Finally, when mutual assault was part of the DVE, children were more likely to be directly exposed. Children's direct exposure to bi-directional violence between two intimates is an understudied variable in the domestic violence literature. It is difficult to hypothesize the impact of children observing their mothers as both a victim of domestic violence and an active participant in the violence. This finding raises a number of interesting questions that are worth pursuing in future research. Does direct exposure to mutual assault have higher risks to child development than violence with one clear perpetrator? Is it more harmful to see your mother commit acts of violence in addition to being assaulted? Or is it better to see her fight back?

Three major limitations of the present study also point to the need for more extensive investigations. First, although the data collected were all the DVE crimes for a year across one county, they reflect only one major municipality. In particular, they represent a relatively low-crime, middle-to-upper-middle class community. Future research should replicate this study in various municipalities with more diverse populations and higher overall crime rates. Increased number and variability of DVEs may reveal additional facets of the children's direct exposure than found in the present study. Second, the prime purpose of this study was to explore children's direct exposure to domestic violence crimes investigated by law enforcement. Law enforcement officers are charged with investigating all crimes reported to them, and this places them in a prime position to collect data on domestic violence. In this study, we used the appropriate public health sentinel to collect DVE crime data; however, this is not a study representing *all* domestic violence events across *all* possible natural sentinels (e.g., health care providers, protective service workers, and shelter staff). Future research could use the DVEP-C or a similar standard protocol tailored to frontline sentinel groups to collect DVE and child exposure data. Finally, this study is the first to empirically differentiate through direct investigation children present in the household versus

children in the household with *direct sensory exposure* to domestic violence events. The DVEP-C provided a means for officers to distinguish between the types of sensory exposure (i.e., hearing, seeing, physically involved); however, to create dichotomous variables for multiple logistic regression, the types of direct sensory exposure were collapsed and analyzed as "direct exposure/no direct exposure." Additional work is needed to better understand the various types of sensory exposure. Moreover, we need to go beyond 'direct exposure' and determine ways in which children are involved in the DVEs. The SARP study revealed various ways children were involved in DVEs, such as placing a call for help, and trying to defend their mothers (Fantuzzo, et al., 1997). In the present study, these data were not collected. Adding and verifying these data would provide us with an additional research tools to extend our understanding of the impact of direct exposure.

In sum, the present study documented for the first time direct child exposure to domestic violence crimes across an entire municipality for an entire year. It demonstrated that law enforcement officers can reliably serve as part of a public health surveillance system for children exposed to domestic violence. Findings from these direct investigations of substantiated domestic violence crimes extend our understanding of this social problem beyond mere victim retrospective self-reports and a gross 'children present/not present' dichotomy. They provide us with a better understanding of the multifaceted nature of domestic violence in a population and account for the individual child characteristics and variability in direct exposure which may mediate the adverse effects for children. Empirically accounting for the variability of the violent events and exposure will provide child welfare professionals with essential information to inform the selection of appropriate services. Moreover, this study's findings showed that our most vulnerable children are being exposed to the most high-risk forms of violence and other known risk factors to child

development. Children were not only disproportionately present in domestic violence households, but more than half of the exposed children were younger than age six. Directly exposed children were more likely to experience co-occurring victim injuries, weapon use, arrest, and bi-directional violence. These multiple and severe risks experienced during the formative stages of development significantly threaten the physical and psychological well-being of these children.

Together, these findings call for major municipal, inter-agency collaboration to see that children and their mothers receive appropriate assessment and treatment services in a non-stigmatizing manner. This collaboration could build further capacity so that other relevant sentinels (e.g., school, child protective service and medical and emergency room professionals) could be added to form a more comprehensive public surveillance system within the municipality. Child social service and mental health professionals could join this collaboration and help create a network of relevant services. A better understanding of the relationship between domestic violence characteristics and children's direct exposure can help these professionals more precisely understand negative child outcomes and appropriate services. This type of public health approach holds great promise to provide more scientifically credible research to inform a comprehensive identification and response system for children directly exposed to domestic violence.

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Table 1. *Odds Ratios and Probability Levels for Domestic Violence Event Variables on Children Exposed to the DVE*

	Outcome Variable
Explanatory Variable	Child Exposure
Non-White Victim	1.35**
Perpetrator as Father	3.29****
Arrest	1.19*
Victim Injury	1.95***
Weapon	1.81*
Mutual	1.17*
Substance Use	--

* p < .05, **p .01, ***p .001, ****p< .0001

Note. *N* = 1,517. Significance is based on Wald chi-square statistics.